CLAIMS

1. A workpiece inspection system comprising a machine tool which has a controller operable to perform a workpiece producing process and a workpiece inspection process, the inspection process including a method for synchronising varying data relating to measurements of the workpiece from a measurement device with varying data relating to machine position from the machine tool, comprising in any suitable order the steps of:

mounting the measurement device on the machine tool;

changing the position of the workpiece relative to the measurement device;

causing measurements of the workpiece to be taken by the measurement device;

issuing synchronisation signals defining a plurality of instants;

recording a first set of the varying data relating to the position of the machine at least at some of the instants; and

recording a second set of the varying data from the measurement device relating to measurements of the workpiece at least at some of the instants.

2. A workpiece inspection system as claimed in claim 1 wherein the synchronisation signal issues from the controller.

3. A workpiece inspection system as claimed in claim 1 wherein the synchronisation signal is used to identify the real time at which at least some of the members of the first and second sets of data from the machine tool and measurement device were recorded in

order that the position data and the measurement data can be combined with a related real time.

4. A workpiece inspection system as claimed in claim 1 wherein the measurement device is monitored at intervals which are more frequent than the occurrences of the said intervals and only selected data is recorded to the second set and/or the data is manipulated prior to its recording.

5. A workpiece inspection system as claimed in claim 1 wherein the system further includes software for combining the data of the first and second sets and, when combined, for influencing the workpiece producing process performed at the controller of the machine tool.

6. A workpiece inspection system as claimed in any one preceding claim wherein the system further includes an interface circuit which accepts the synchronisation signal and the varying data from the measurement device.

7. A workpiece inspection system as claimed in claim 1 wherein the system includes a stop signal path from the measurement device to the machine controller and the machine controller stops the machine if a stop signal is received by the machine controller.

8. A workpiece inspection system as claimed in claim 1 wherein the measurement device is a contact type dimensional measurement probe and the varying data relates to changes in the deflection of a workpiece contact stylus connected to the probe.

9. A workpiece inspection system as claimed in claim 5 wherein the first set of data is corrected to at least reduce positional errors of the machine tool, prior to combination with the second set.

10. A workpiece inspection system as claimed in claim 1 wherein the first and/or second sets of data are manipulated such that the manipulated data represents approximately the data which would have been obtained had the two sets been recorded at the same time.

11. A workpiece inspection system as claimed in claim 1 wherein the controller issues a further signal which enables the recording of the second set.

12. Software for controlling a workpiece inspection system according to the steps claimed in claim 1.

13. A workpiece inspection system comprising a machine tool having a first part, a second part movable relative to the first part, and a controller operable to perform both a workpiece production process and a workpiece inspection process and for producing varying data relating to the relative position of the first and second parts, the system comprising also a workpiece measurement device attached to the second machine part for producing varying data relating to measurements of the workpiece and a synchronisation signal producer, the system being operable such that the following workpiece inspection steps are performed:

mounting the measurement device on the second part of the machine tool;

changing the position of the workpiece relative to the measurement device;

causing measurements of the workpiece to be taken by the measurement device;

issuing synchronisation signals defining a plurality of instants;

recording a first set of the varying data relating to the relative position of the first and second parts of the machine at least at some of the instants; and

recording a second set of the varying data from the measurement device relating to measurements of the workpiece at least at some of the instants.